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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,189	10/06/2003	Hiroshi Tsunehara	NS-US035105	2342

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EXAMINER

SCHWARTZ, CHRISTOPHER P

ART UNIT PAPER NUMBER

3683

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/678,189

Applicant(s)

TSUNEHARA, HIROSHI

Examiner

Christopher P. Schwartz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☒ Claim(s) 1-28 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-160)
- 6) ☐ Other: ____.

CHRISTOPHER P. SCHWARTZ
PRIMARY EXAMINER

DETAILED ACTION

1. Applicant's response filed August 6, 2004 has been received and considered.

Pursuant to the interview with applicant's representative on August 4 the restriction requirement has been withdrawn.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kidston et al. in view of Aoki et al. 5,399,000 or Asanuma et al. '355.

Regarding claims 1,19,20 as discussed previously Kidston et al. discloses a vehicle braking control system comprising a braking mode selecting section configured to set one of a plurality of braking modes i.e. appropriate blend of regenerative/hydraulic/electric braking dependent upon road and/or vehicle conditions. The required braking force determining section is disclosed in col. 6 around line 29. Although Kidston et al. does not, per se, use a target braking force setting section to determine target regenerative, hydraulic and electric braking forces to determine their appropriate relative proportion or blend for a particular set of circumstance Kidston does show in figure 5 and discloses in cols 6-8 a mathematic method for achieving their appropriate blend.. This method is considered to be an obvious alternative equivalent to the notoriously well known method of using predefined target braking force limits.

Kidston et al. does not specifically disclose setting the target brake force, or limit values, based on the braking control priority of a selected braking mode to produce the required braking force for the entire vehicle.

The references to Aoki et al. '000 or Asanuma et al. '355 both teach similar regenerative braking systems that are designed to maximize the energy recovered from regenerative braking (col. 2 lines 40+ of '000). These systems also disclose anti-lock capability. Note the three different braking modes disclosed in each reference. See '000 fig 3 and cols5-8 and '355 cols 10-16. These references teach that the blend of braking forces between the 3 different types discussed above depends upon a number of different factors: road surface conditions, depressing force of the brake pedal (brake demand), whether the vehicle is in anti-lock or traction control, speed of the vehicle etc. battery. Note also the switching means and its function as disclosed in Asanuma et al. (see claims 24+).

One having ordinary skill in the art at the time of the invention would have found it obvious to have used target braking force limits in Kidston et al. as such a method for determining appropriate levels of braking force applied to the front and rear wheels for a predetermined set of circumstances is old and well known in the art and to have based the said target forces on a "braking control priority of the selected mode", as broadly claimed would have been obvious to the ordinary skilled worker in the art to maximize the use of regenerative braking while offering a braking system that operates smoothly with high responsiveness.

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Regarding claims 2-18 and 21—28 these limitations would have been obvious since it is known to blend the 3 different braking types based upon predetermined targets or limits to maximize energy savings and braking effectiveness based upon particular driving/braking conditions.

Response to Arguments

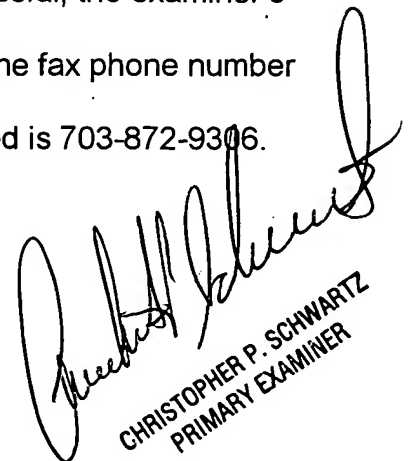
4. Applicant's arguments with respect to claims 1-28 have been considered but are moot in view of the new ground(s) of rejection.

5. However it is noted applicants are extremely broad with the term "braking control priority of the selected braking mode". The "braking control priority" could be the appropriate blending adjustments the braking system makes when the vehicle enters into traction, anti-lock or stability control.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Schwartz whose telephone number is 703-308-0576. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack W. Lavinder can be reached on 703-308-3421. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



CHRISTOPHER P. SCHWARTZ
PRIMARY EXAMINER

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Cps
10/30/04